RFS-SP8T RF Switch

Matrix User's Manual

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Table of Contents

Table of Contents 2
List of Figures 3
List of Tables 3
1.0 Introduction 4
2.0 Front Panel 6
3.0 Back Panel 7
  3.1 RS232 Connector 7
  3.2 LAN Connector 8
  3.3 Reset Switch 8
4.0 RS232 Commands 9
  4.1 “?” Command 10
  4.2 “LS” Command 11
  4.3 “SS” Command 12
  4.5 “AB” Command 14
  4.6 “SD” Command 15
5.0 Socket Interface 16
  5.1 SETSW Command 16
  5.2 GWTSW Command 17
  5.3 LFP Command 18
  5.4 UFP Command 19
  5.5 GETFV Command 20
  5.6 GETSN Command 21
6.0 Warranty 22
7.0 Document Revision History 23

List of Figures

Figure 1 – RFS-SP8T 5
Figure 2 – RFS-SP8T Front Panel 6
Figure 3 – RFS-SP8T Back Panel 7

List of Tables

Table 1 - RS232 Connector Pinout 7

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1.0 Introduction

The RFS-SP8T is an single pole, 8 throw solid state RF switch, with signal bandwidth of 0.1 GHz to 8 GHz. The switch position is set by pressing one of eight front panel momentary switches, or via LAN interface. An RS232 port is provided for configuring the switch IP address, and other operating parameters

Figure 1 – RFS-SP8T

2.0 Front Panel

Figure 2 is a picture of the front panel. A specific RF switch position is selected by pressing the corresponding momentary switch. The current RF switch position is indicated by a red LED.

A green power indicator LED is also mounted on the front panel

Figure 2 – RFS-SP8T Front Panel

3.0 Back Panel

Figure 3 shows the back panel of the RFS-SP8T. The RS232 connector, LAN connector, and reset button are labeled on the chassis and visible in the graphic below. In addition, 2 LEDs indicating the LAN status (Link and Activity) are located directly above the LAN connector.

Power is supplied to the unit using a standard instrument cord. The RFS-SP8T will operate on a 110/220V 50/60 Hz AC power source.

Nine RF signal SMA connectors are accessible near the top of the read panel. The RF Common (switch “pole”) is to the left and is labeled “RFC”. The eight RF switch positions are identified as RF1-RF8.

Figure 3 – RFS-SP8T Back Panel

3.1 RS232 Connector

A standard DB9F is located on the right side of the RFS-SP8T back panel. The connector pinout is provided in the table below:

Pin Number	Signal	Direction
2	TX	Output
3	TX	Input
5	GND	

Table 1 - RS232 Connector Pinout

The RS232 port is configured for 9600 baud, 8 bits, no parity, 1 stop bit.

3.2 LAN Connector
Standard RJ45 10/100 Ethernet connector

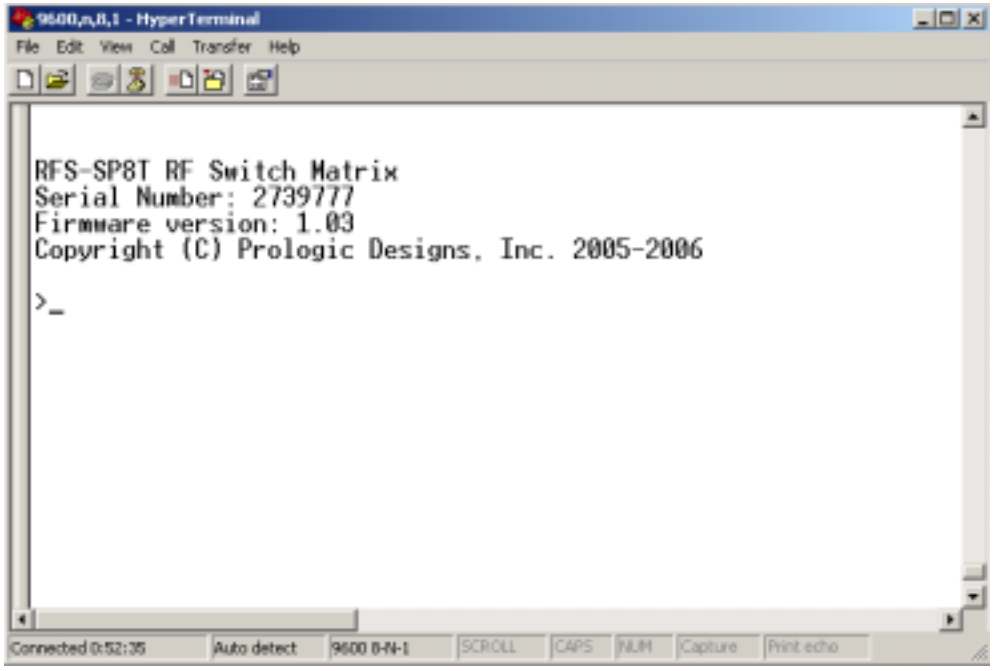
3.3 Reset Switch
Momentary switch that generates a hardware reset when pressed.

Note: Following reset (or power up) it takes 3 or 4 seconds for the unit to initialize and attempt to establish communication on the LAN.

4.0 RS232 Commands

To use the RS232 commands, connect a computer running a terminal emulator program (e.g. Hyperterm) configured for 9600 baud, 8 bits, no parity, 1 stop bit.

Upon reset, the RFS-SP8T will display the sign on message as shown below (all examples use Hyperterm):



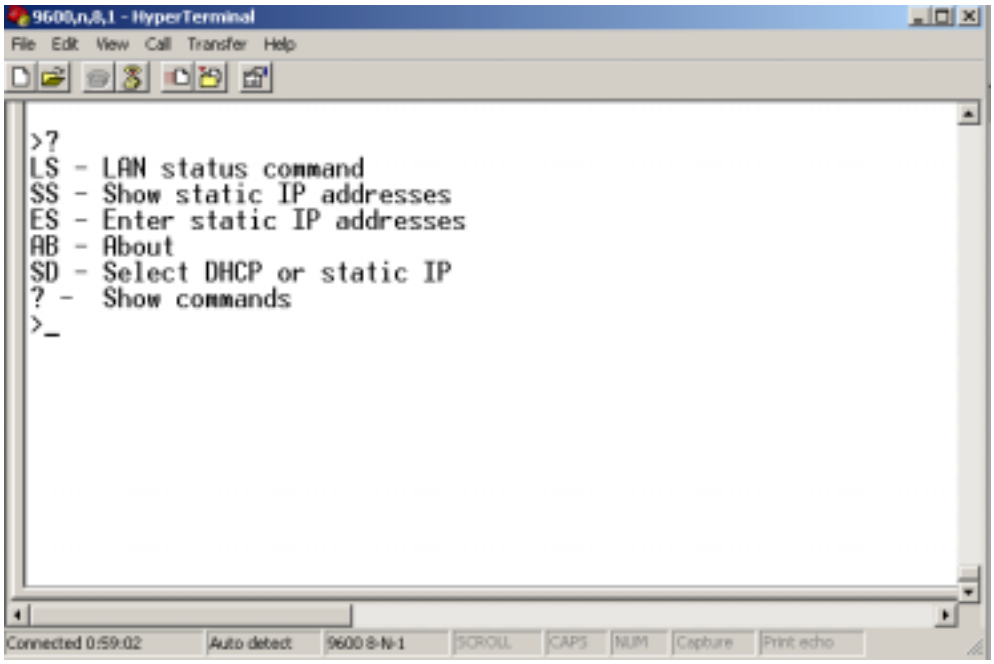
The '>' character is the prompt indicating the RFS-SP8T's RS232 interface is ready to accept commands. All commands are one or two characters followed by the "enter" key. In the following command descriptions, <enter> is used to indicate pressing the enter key.

4.1 “?” Command

Function: Displays available commands on the terminal

Command format: “?<enter>”

Example:



4.2 “LS” Command

Function: Displays the status of the LAN interface

Command format: “LS<enter>”

Response:

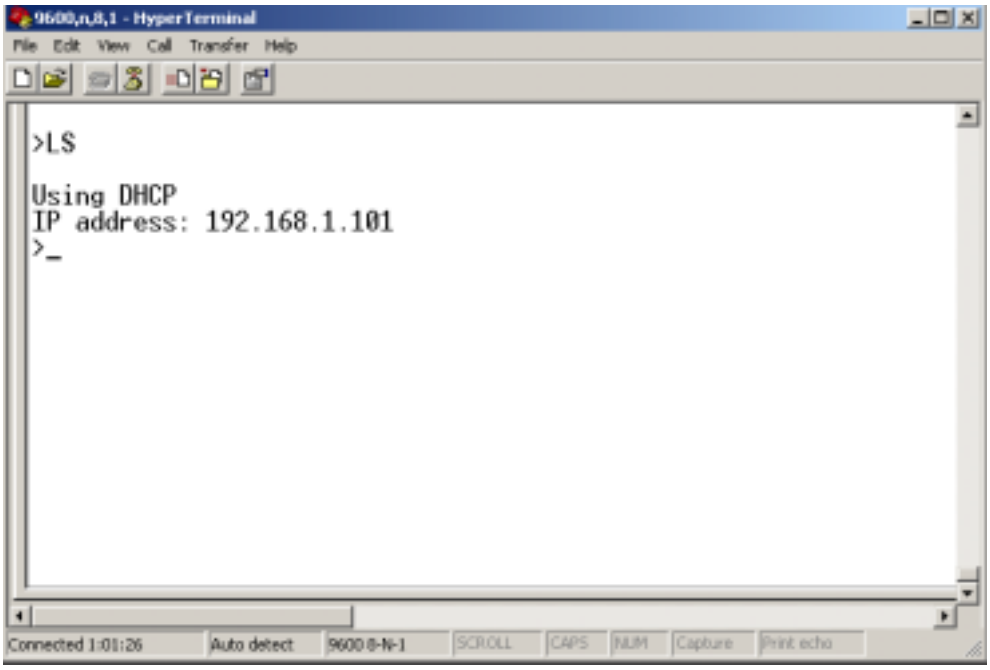
Using DHCP
IP address: aaa.aaa.aaa.aaa

Or

Using static IP
IP address: aaa.aaa.aaa.aaa

Where:
aaa.aaa.aaa.aaa is a standard dotted decimal IP address with lead zeros suppressed assigned by the DHCP, or the default static IP address if static IP was selected (by SD command)

Example:



4.3 “SS” Command

Function: Displays the user specified static IP addresses

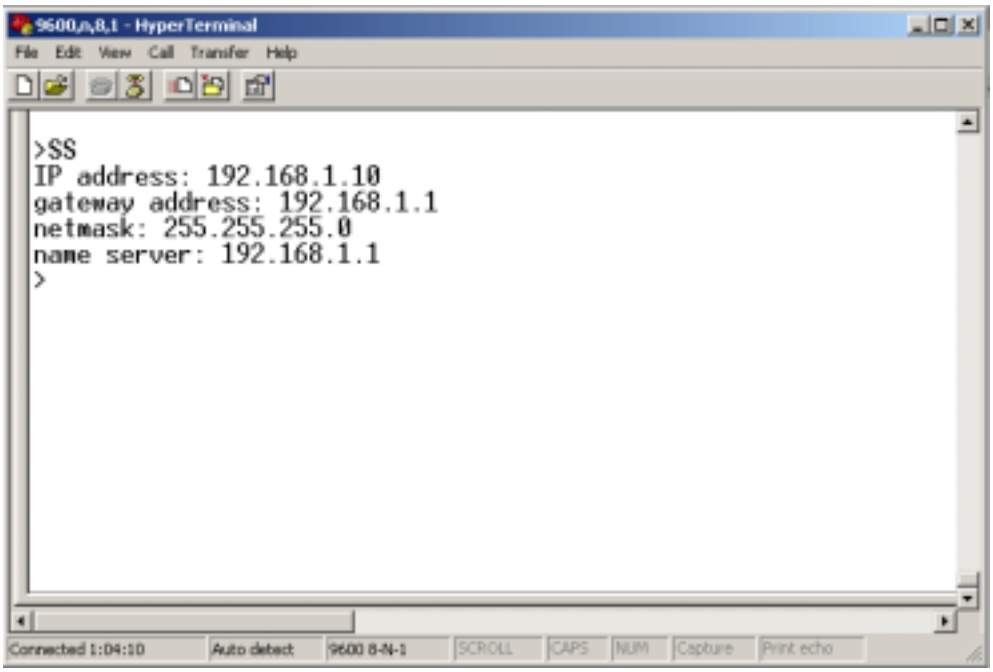
Command format: “SS<enter>”

Response:
IP address: aaa.aaa.aaa.aaa
gateway address: bbb.bbb.bbb.bbb
network mask: ccc.ccc.ccc.ccc
name server: ddd.ddd.ddd.ddd

Where:
aaa.aaa.aaa.aaa
bbb.bbb.bbb.bbb
ccc.ccc.ccc.ccc
ddd.ddd.ddd.ddd

are IP addresses in standard dotted decimal format with lead zeros suppressed.

Example:



4.4 “ES” Command

Function: Enter static IP addresses

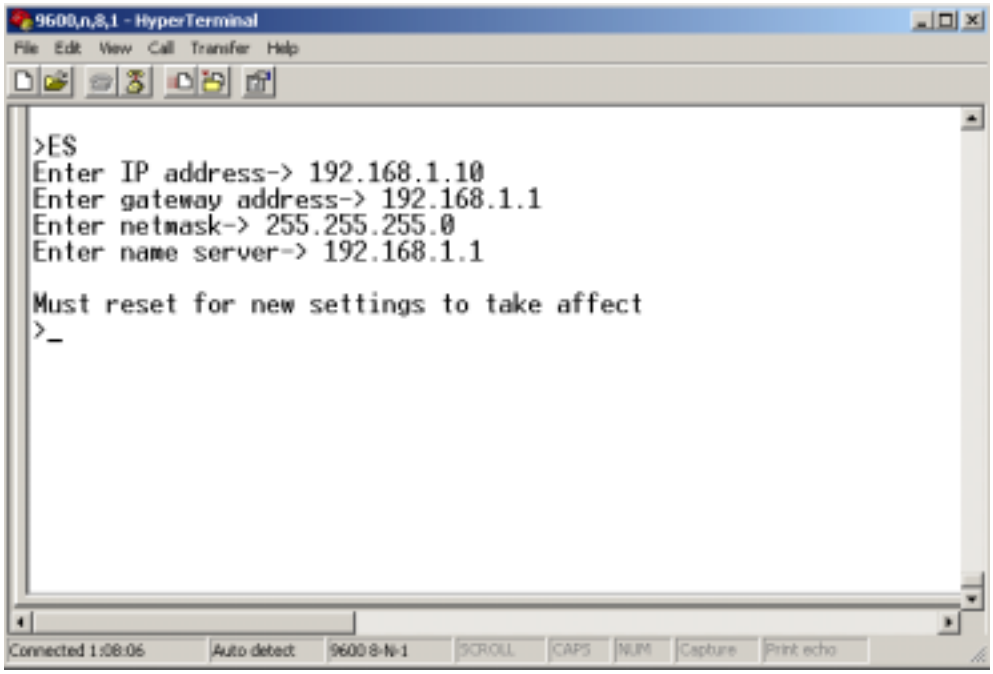
Command format: “ES<enter>”

Response:
Enter IP address-> <aaa.aaa.aaa.aaa.aaa><enter>
Enter gateway address-> <bbb.bbb.bbb.bbb><enter>
Enter network mask-> <ccc.ccc.ccc.ccc><enter>
Enter name server-> <ddd.ddd.ddd.ddd><enter>

Where:
<aaa.aaa.aaa.aaa ><enter>
<bbb.bbb.bbb.bbb><enter>
<ccc.ccc.ccc.ccc><enter>
<ddd.ddd.ddd.ddd><enter>

are user entered IP addresses in standard dotted decimal format with lead zeros suppressed followed by the enter key.

Example:

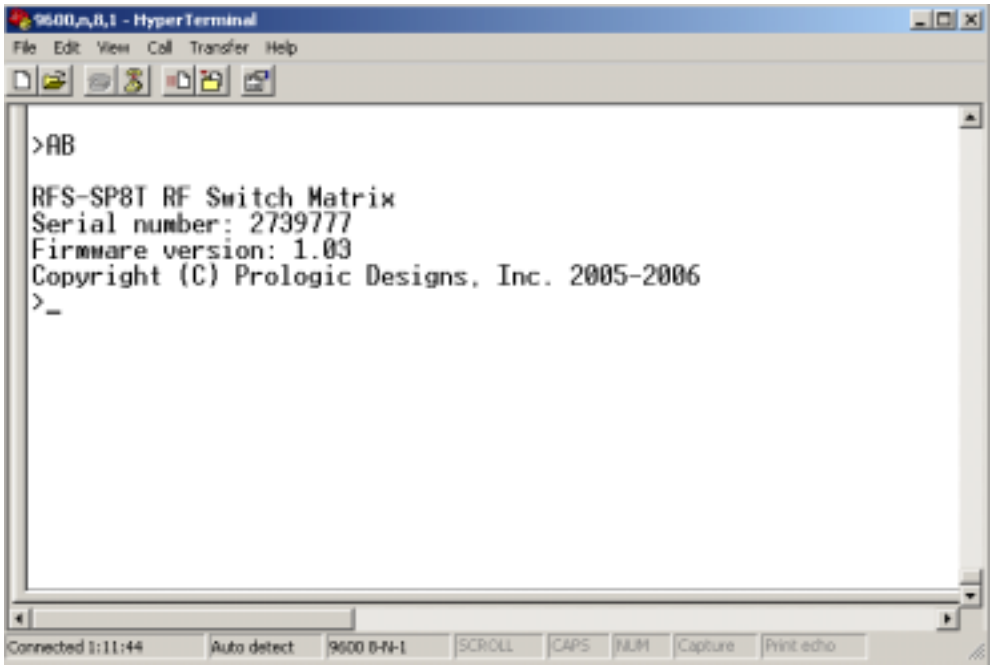


4.5 “AB” Command

Function: Identifies the unit’s model number, serial number, and firmware version.

Command format: “AB<enter>”

Example:



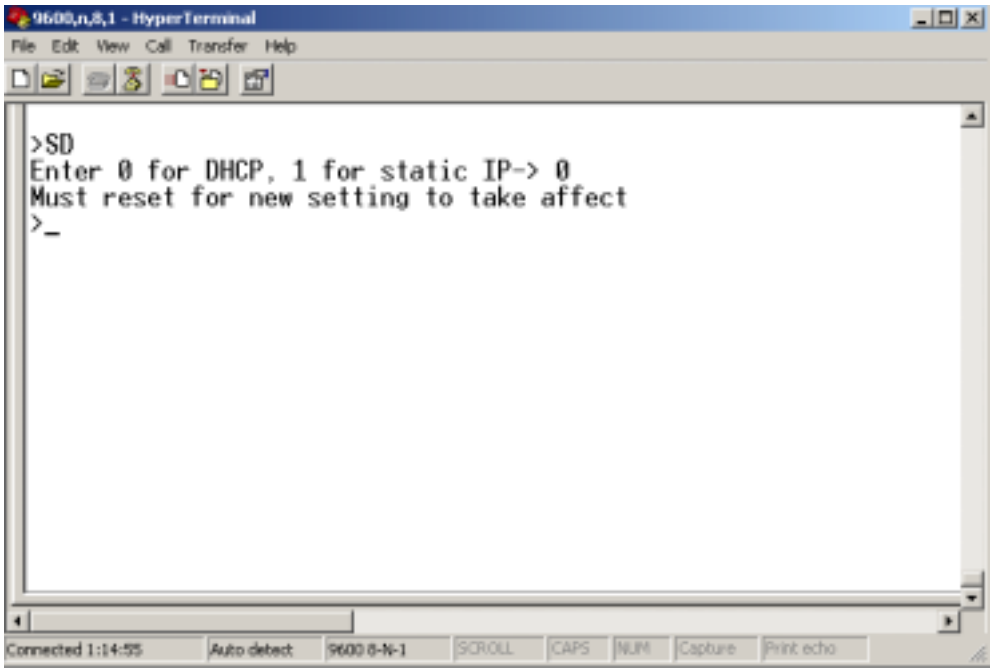
4.6 “SD” Command

Function: Select static IP or DHCP

Command format: “SD<enter>”

In the following example, the user selected ‘0’ for DHCP. Selecting ‘1’ would select static IP addressing.

Example:



5.0 Socket Interface

The RFS-SP8T firmware provides socket commands to set/read the RF switch position, lock/unlock the front panel momentary switches, and read the firmware version and serial number. Each command is described in the following sections. The examples assume a TCP/IP socket has been established with the RFS-SP8T on port 14000.

5.1 SETSW Command

Function: set the RFS-SP8T switch position

Format: SETSW,n

Where:
n is the RF switch position, 1<=n<=8

Response: 0x03

Example:
If w is a previously opened network stream to the RFS-SP8T, then

w.Write("SETSW,2");

sets the RF switch to the second position.

The control software should wait for the acknowledge byte 0x03 to be returned before sending additional commands

5.2 GETSW Command

Function: Read the current RFS-SP8T RF switch position

Format: GETSW

Response: Switch=n

Where
n is the current RF switch position, 1<=n<=8

Example:
If w is a previously opened write network stream, and r is a previously opened read network stream, then

```
w.Write("GETSW");
byte[] verifyArray = r.ReadBytes(8);
```

will read the RF switch position into the array verifyArray.

5.3 LFP Command

Function: Disables the RFS-SP8T front panel momentary switches

Format: LFP

Response: 0x03

Example:
If w is a previously opened network stream to the RFS-SP8T, then

w.Write("LFP");

disables the front panel switches.

The control software should wait for the acknowledge byte 0x03 to be returned before sending additional commands

5.4 UFP Command

Function: Enables the RFS-SP8T front panel momentary switches

Format: UFP

Response: 0x03

Example:
If w is a previously opened network stream to the RFS-SP8T, then

```
w.Write("UFP");
```

enables the front panel switches

The control software should wait for the acknowledge byte 0x03 to be returned before sending additional commands

5.5 GETFV Command

Function: Retrieves the RFS-SP8T firmware version

Format: GETFV

Response: nVVV…V

Where:
n is the number of characters in the serial number
VVV…V is a variable length firmware version string

Example:
If w is a previously opened write network stream, and r is a previously opened read network stream, then

```
w.Write("GETFV");
nn=r.ReadByte(); // get the number of characters in nn
byte[] verifyArray = r.ReadBytes(nn);          // read nn length string
```

reads the variable length firmware version string into the array verifyArray

5.6 GETSN Command

Function: Retrieves the RFS-SP8T serial number

Format: GETSN

Response: nVVV…V

Where:
n is the number of characters in the serial number
VVV…V is the variable length serial number string

Example:
If w is a previously opened write network stream, and r is a previously opened read network stream, then

```
w.Write("GETSN");
nn=r.ReadByte(); // get the number of characters in nn
byte[] verifyArray = r.ReadBytes(nn);          // read nn length string
```

reads the variable length serial number string into the array verifyArray

6.0 Warranty

Prologic Designs warrants the RFS-SP8T to be free of defects for a period of 90 days from date of delivery. In event of failure, Prologic Designs will repair or replace, at our discretion, the RFS-SP8T unit.

7.0 Document Revision History

Date	Revised By	Description of Revision
October 17, 2006	J. Cammarata	Original Document